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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/857,386	09/04/2001	Paul Richard Phillips	JMYT-244US	4927

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EXAMINER

TRAN, BINH Q

ART UNIT	PAPER NUMBER
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3748

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DATE MAILED: 06/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/857,386

Applicant(s)

PHILLIPS ET AL.

Examiner

BINH Q. TRAN

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-14 and 16-25 is/are rejected.
- 7) ☒ Claim(s) 15 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 September 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

DETAILED ACTION

Receipt and entry of Applicant's Preliminary Amendment dated June 05, 2001 is acknowledged.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the step of ***"modifying engine settings to pass more HC and/or generate more CO"*** in claim 10, must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the ***"light duty engine , turbo-charged direct injection engine, heavy duty engine"*** in claims 20-22, must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

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The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

Claims 1-14, and 16-25 are rejected under 35 U.S.C. 102 (e) as being anticipated by Penetrante et al. (Penetrante) (Patent Number 6,038,854).

Regarding claim 1, Penetrante discloses a process of treating internal combustion engine exhaust gas containing O₂, NO_x, unburnt hydrocarbon ("HC"), CO and soot, comprising:

- i. oxidizing a substantial part of the HC (See col. 5, lines 35-55);
- ii. treating the product of step i to oxidize NO to NO₂ (See col. 5, lines 40-55);
- iii. collecting soot (e.g. See col. 11, lines 64-67; col. 12, lines 1-10); and
- iv. combusting the collected soot by reaction with the NO₂ and possibly any O₂ left over after steps i and ii (e.g. See col. 13, lines 8-41).

Regarding claim 2, Penetrante further discloses that steps i and ii are effected catalytically (e.g. col. 5, lines 35-55).

Regarding claims 3, 16, and 19- 24, Penetrante further discloses a first catalyst (74) adapted to be fed with internal combustion engine (14) exhaust gas and effective to promote oxidation of HC therein; a second catalyst (78) adapted to be fed with the product of i and effective to promote oxidation of NO to NO₂; and a filter (e.g. 82, 112) effective to collect soot and to retain

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it until combusted by said NO₂ and any O₂ left over after catalytically (e.g. See col. 6, lines 1-68; col. 7, lines 1-50).

Regarding claims 4, and 17, Penetrante further discloses that the catalysts are honeycomb supported (See Fig. 3).

Regarding claims 5, and 18, Penetrante further discloses that the cell density of the honeycomb is in the range 100-900 per square inch. (e.g. See col. 7, lines 9-17)

Regarding claim 6, Penetrante further discloses that the HC is in gaseous form (See col. 5, lines 35-55).

Regarding claim 7, Penetrante further discloses that the first oxidation is carried out close to the source of exhaust gas, whereby to obtain a maximum convenient operating temperature and reaction rate (e.g. See col. 8, lines 55-67).

Regarding claim 8, Penetrante further discloses that the gas leaving step/catalyst i undergoes cooling and then enters step/catalyst ii (e.g. See col. 6, lines 1-68; col. 7, lines 1-50).

Regarding claim 9, Penetrante further discloses the step of providing an increased amount of combustible upstream of a first catalyst for effecting step i for increasing the temperature at which step i operates (e.g. See col. 8, lines 55-67).

Regarding claim 10, Penetrante further discloses the step of modifying engine settings to pass more HC and/or generate more CO (e.g. See col. 5, lines 35-55).

Regarding claim 11, Penetrante further discloses that the a first catalyst for effecting step i has a very low light-off temperature for HC and CO oxidation (e.g. See col. 8, lines 55-67).

Regarding claim 12, Penetrante further discloses that the HC is absorbed on the soot (e.g. See col. 13, lines 55-67; col. 14, lines 1-20).

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Regarding claim 13, Penetrante further discloses the step of removing NOx down stream of soot combustion (e.g. See col. 14, lines 53-64).

Regarding claim 14, Penetrante further discloses the step of removing NOx uses a regenerable NOx absorber (e.g. 136) downstream of the collecting trap (e.g. See col. 14, lines 53-64).

Allowable Subject Matter

Claim 15 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance: The prior art fails to disclose or render obvious the claimed combination including a catalytic NOx-removal downstream of the NOx absorber.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Since allowable subject matter has been indicated, applicant is encouraged to submit formal drawings in response to this Office action. The early submission of formal drawings will permit the Office to review the drawings for acceptability and to resolve any informalities remaining therein before the application is passed to issue. This will avoid possible delays in the issue process.

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Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure and consists of six patents:

Khair et al. (Patent Number 6,293,096), Noda et al. (Patent Number 5884473), Minami (Patent Number 6484495), Murachi et al. (Patent Number 5746989), Danno et al. (Patent Number 5398503), and Tanaka et al. (Patent Number 5551231) all discloses an exhaust gas purification for use with an internal combustion engine.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Binh Tran whose telephone number is (703) 305-0245. The examiner can normally be reached on Monday-Friday from 8:30 a.m. to 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion, can be reach on (703) 308-2623. The fax phone number for this group is (703) 746-4561.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0861.



BT
June 12, 2003

Binh Tran
Patent Examiner
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